OIPE JC102
MAR 2 2 2004
PATENT & TRADEMARK OFFICE

FIG. 1

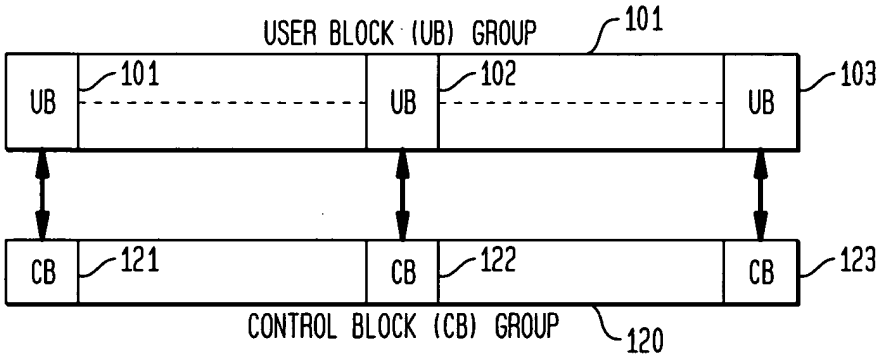


FIG. 2A

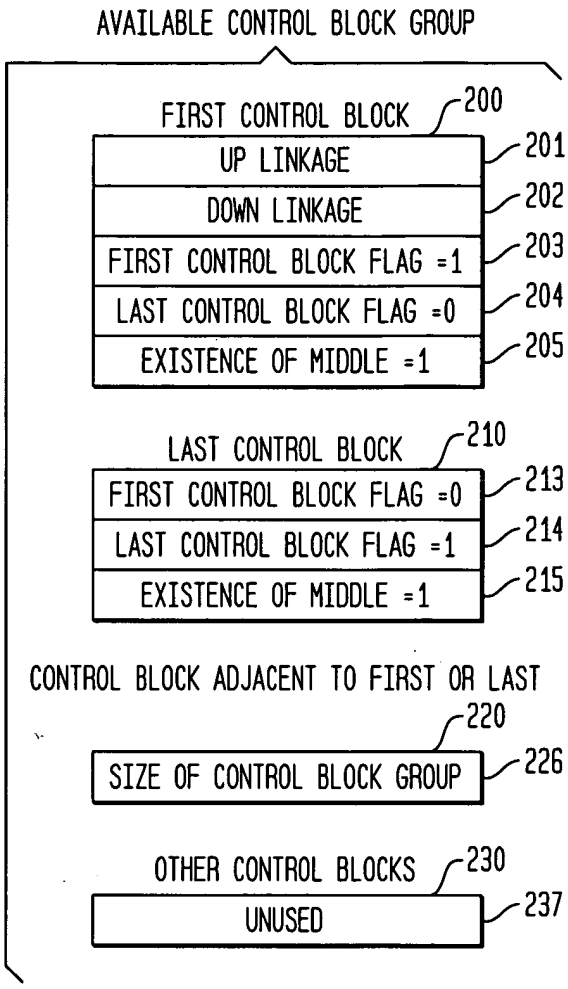

AVAILABLE CONTROL BLOCK GROUP
FIRST CONTROL BLOCK
200
UP LINKAGE
201
DOWN LINKAGE
202
FIRST CONTROL BLOCK FLAG =1
203
LAST CONTROL BLOCK FLAG =0
204
EXISTENCE OF MIDDLE =1
205
LAST CONTROL BLOCK
210
FIRST CONTROL BLOCK FLAG =0
213
LAST CONTROL BLOCK FLAG =1
214
EXISTENCE OF MIDDLE =1
215
CONTROL BLOCK ADJACENT TO FIRST OR LAST
220
SIZE OF CONTROL BLOCK GROUP
226
OTHER CONTROL BLOCKS
230
UNUSED
237

FIG. 2B

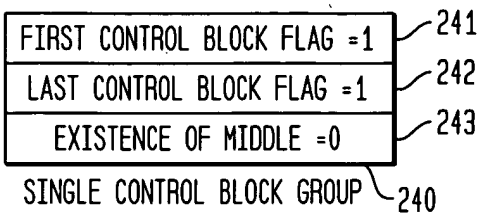

FIRST CONTROL BLOCK FLAG =1
241
LAST CONTROL BLOCK FLAG =1
242
EXISTENCE OF MIDDLE =0
243
SINGLE CONTROL BLOCK GROUP
240

FIG. 2C

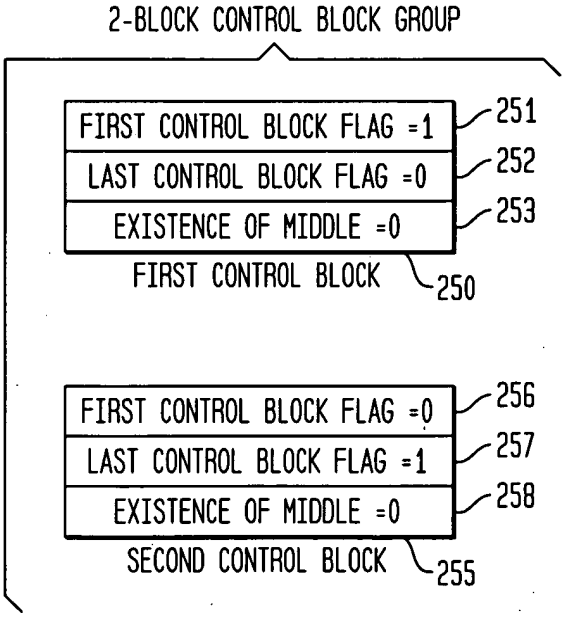

2-BLOCK CONTROL BLOCK GROUP
FIRST CONTROL BLOCK FLAG =1
251
LAST CONTROL BLOCK FLAG =0
252
EXISTENCE OF MIDDLE =0
253
FIRST CONTROL BLOCK
250
FIRST CONTROL BLOCK FLAG =0
256
LAST CONTROL BLOCK FLAG =1
257
EXISTENCE OF MIDDLE =0
258
SECOND CONTROL BLOCK
255

FIG. 2D

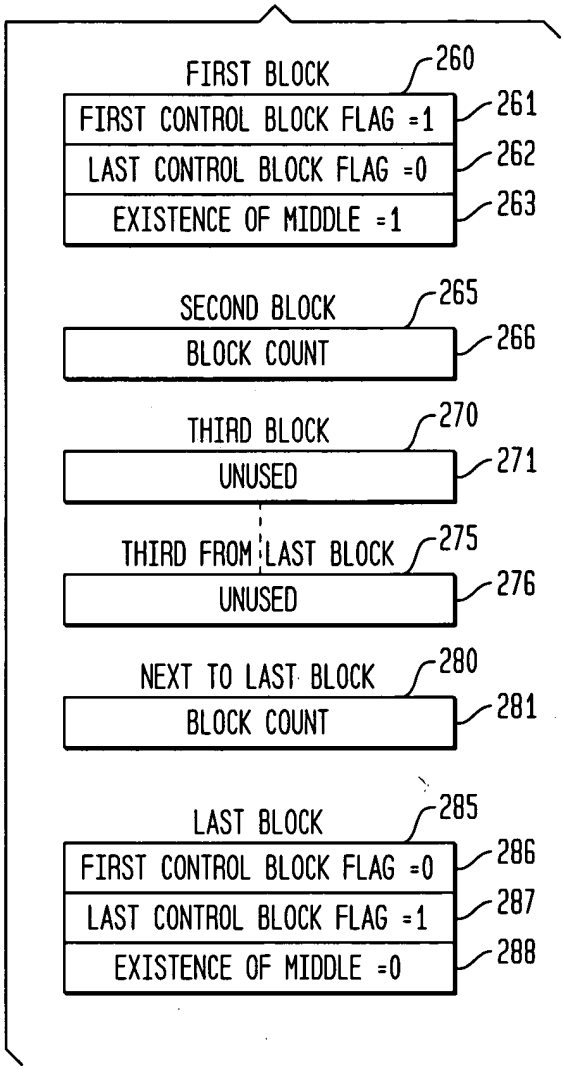

CONTROL BLOCK GROUP OF 3 OR MORE BLOCKS
FIRST BLOCK
260
FIRST CONTROL BLOCK FLAG =1
261
LAST CONTROL BLOCK FLAG =0
262
EXISTENCE OF MIDDLE =1
263
SECOND BLOCK
265
BLOCK COUNT
266
THIRD BLOCK
270
UNUSED
271
THIRD FROM LAST BLOCK
275
UNUSED
276
NEXT TO LAST BLOCK
280
BLOCK COUNT
281
LAST BLOCK
285
FIRST CONTROL BLOCK FLAG =0
286
LAST CONTROL BLOCK FLAG =1
287
EXISTENCE OF MIDDLE =0
288

FIG. 3

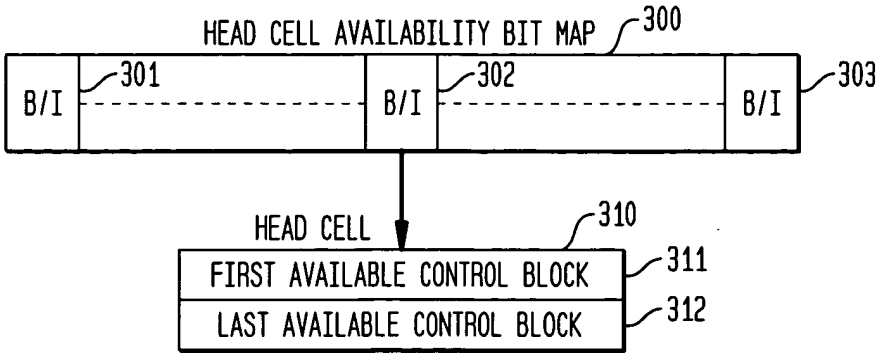

HEAD CELL AVAILABILITY BIT MAP
300
B/I
301
B/I
302
B/I
303
HEAD CELL
310
FIRST AVAILABLE CONTROL BLOCK
311
LAST AVAILABLE CONTROL BLOCK
312

FIG. 4

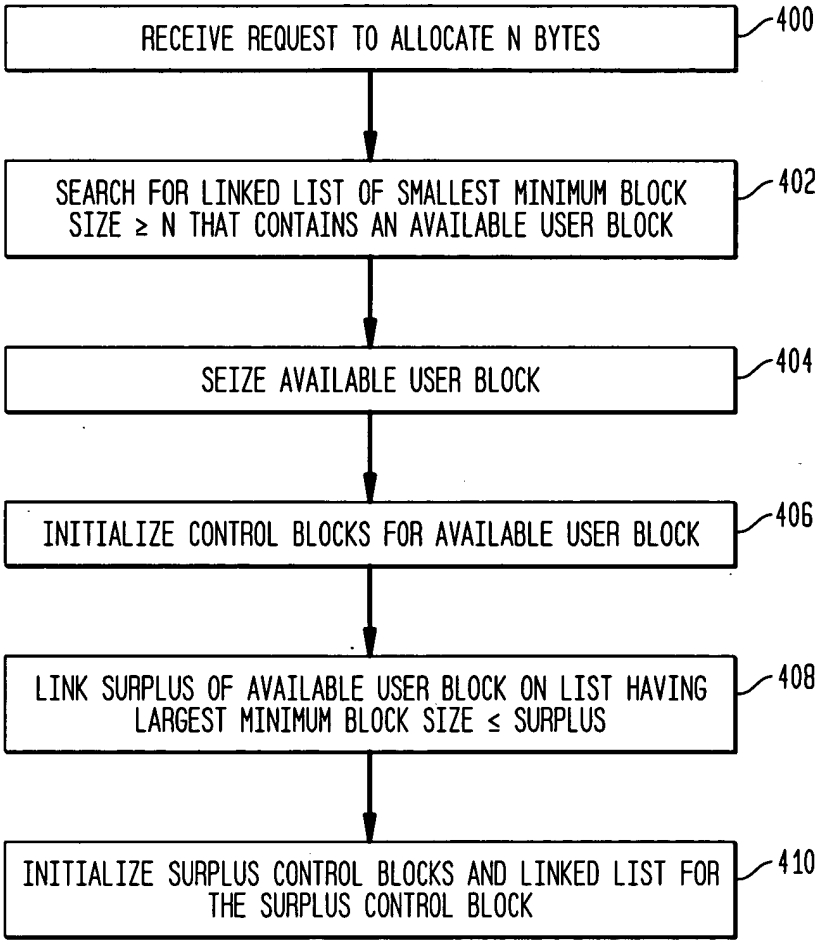

RECEIVE REQUEST TO ALLOCATE N BYTES
400
SEARCH FOR LINKED LIST OF SMALLEST MINIMUM BLOCK SIZE ≥ N THAT CONTAINS AN AVAILABLE USER BLOCK
402
SEIZE AVAILABLE USER BLOCK
404
INITIALIZE CONTROL BLOCKS FOR AVAILABLE USER BLOCK
406
LINK SURPLUS OF AVAILABLE USER BLOCK ON LIST HAVING LARGEST MINIMUM BLOCK SIZE ≤ SURPLUS
408
INITIALIZE SURPLUS CONTROL BLOCKS AND LINKED LIST FOR THE SURPLUS CONTROL BLOCK
410

FIG. 5

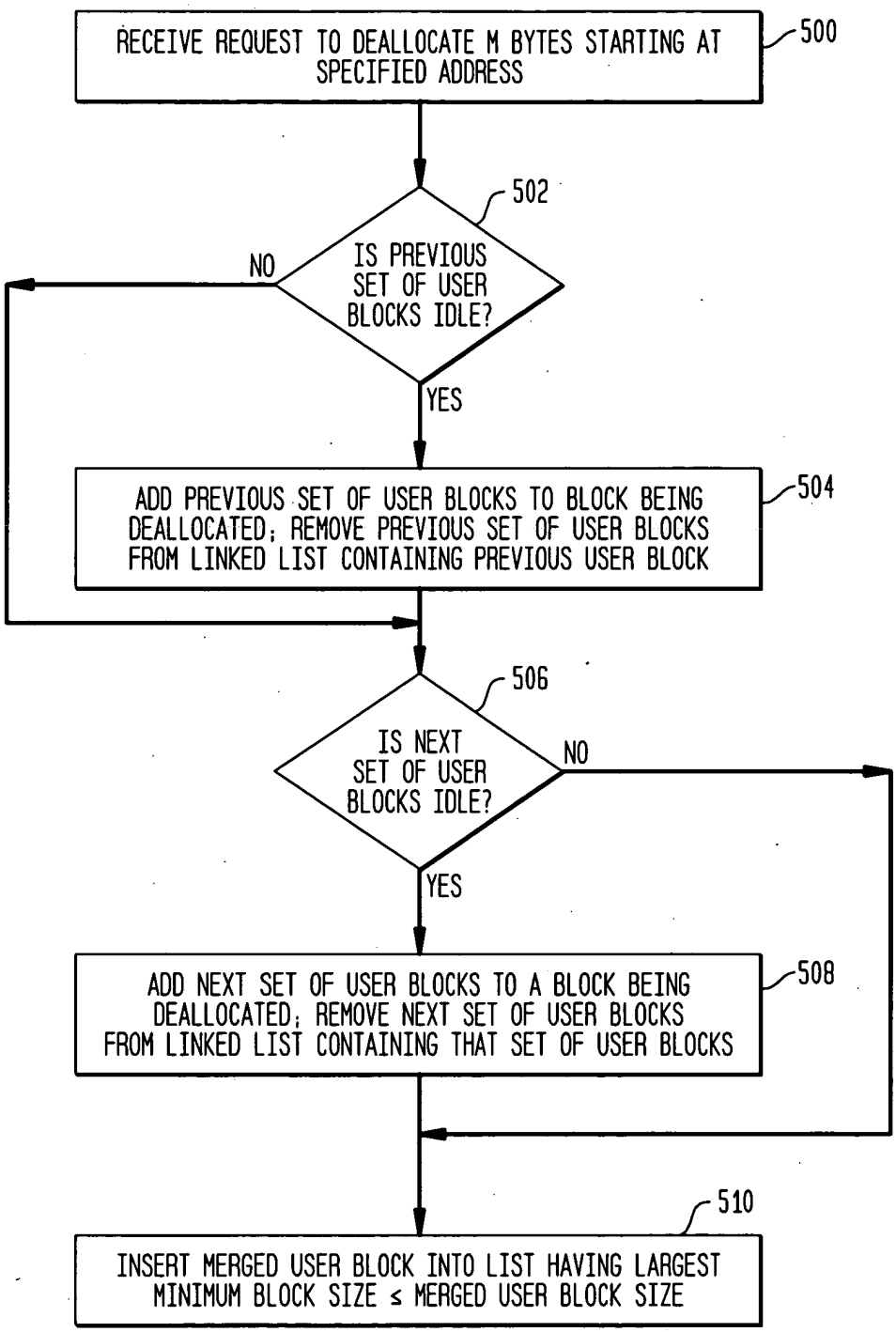

RECEIVE REQUEST TO DEALLOCATE M BYTES STARTING AT SPECIFIED ADDRESS
500
IS PREVIOUS SET OF USER BLOCKS IDLE?
502
NO
YES
ADD PREVIOUS SET OF USER BLOCKS TO BLOCK BEING DEALLOCATED; REMOVE PREVIOUS SET OF USER BLOCKS FROM LINKED LIST CONTAINING PREVIOUS USER BLOCK
504
IS NEXT SET OF USER BLOCKS IDLE?
506
NO
YES
ADD NEXT SET OF USER BLOCKS TO A BLOCK BEING DEALLOCATED; REMOVE NEXT SET OF USER BLOCKS FROM LINKED LIST CONTAINING THAT SET OF USER BLOCKS
508
INSERT MERGED USER BLOCK INTO LIST HAVING LARGEST MINIMUM BLOCK SIZE ≤ MERGED USER BLOCK SIZE
510

FIG. 6A

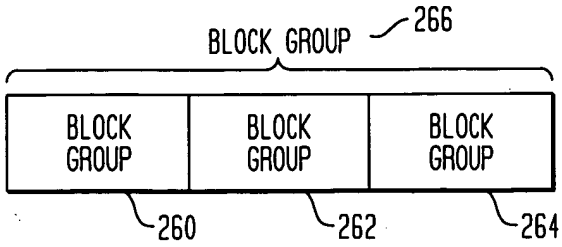


FIG. 6B

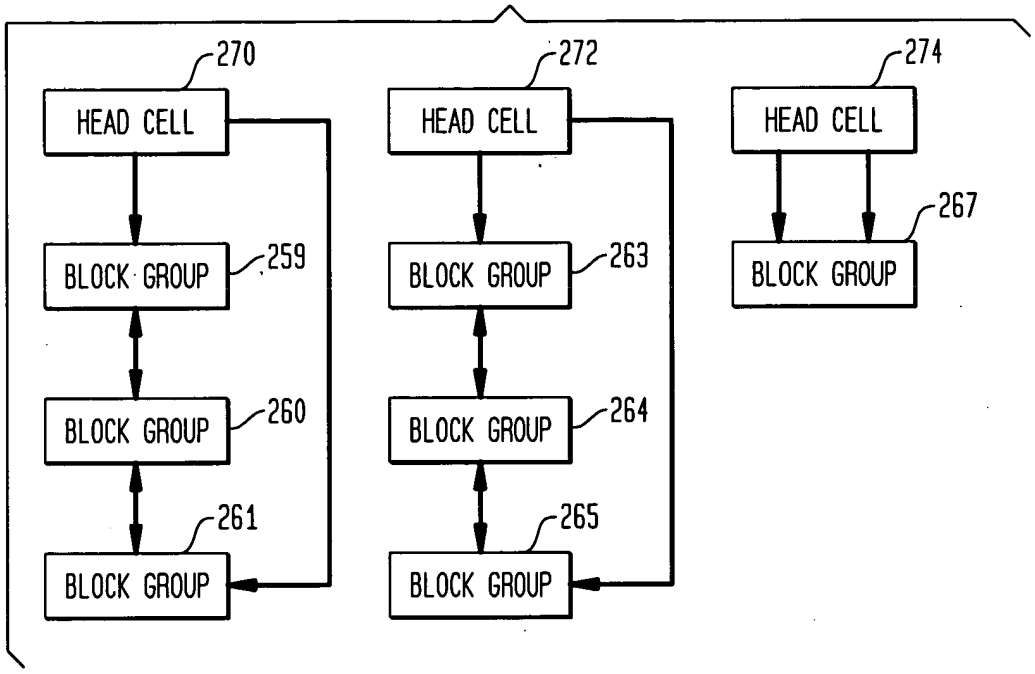


FIG. 6C

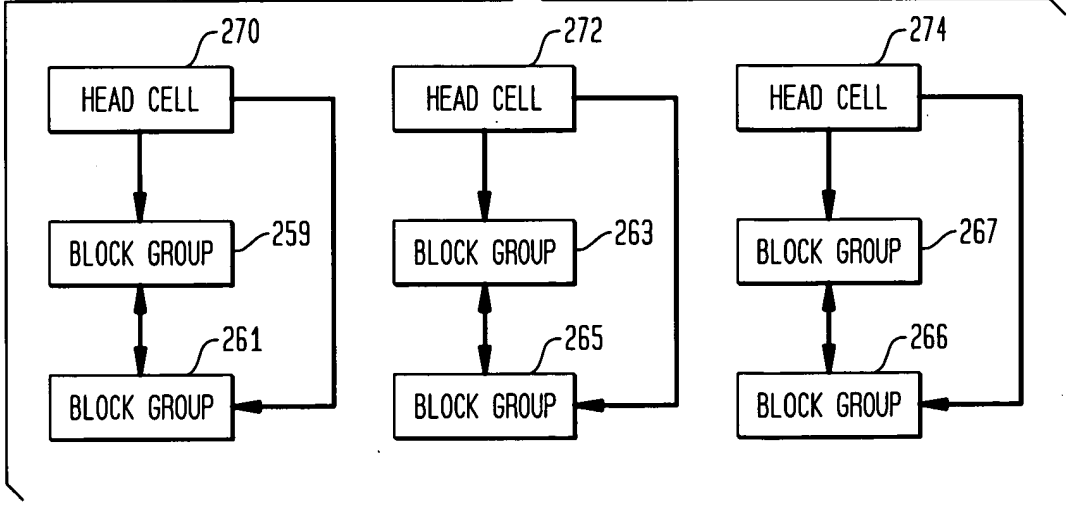
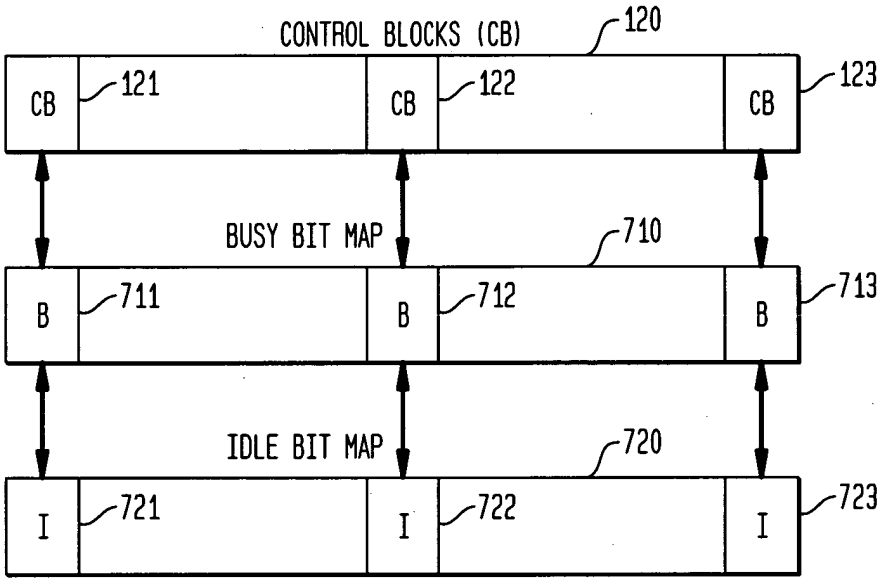


FIG. 7


CONTROL BLOCKS (CB)
120
CB
121
CB
122
CB
123
BUSY BIT MAP
710
B
711
B
712
B
713
IDLE BIT MAP
720
I
721
I
722
I
723